

SEQUENCE LISTING

<110> Kumlehn, Jochen

<120> Method for the production of stably transformed, fertile Gramineae employing Agrobacterium-mediated transformation of isolated Gramineae zygotes

<130> 13173-00023-US

<150> PCT/EP2004/007567

<151> 2004-07-09

<150> EP 03017415.5

<151> 2003-08-01

<160> 3

<170> PatentIn version 3.3

<210> 1

<211> 12739

<212> DNA

<213> Artificial sequence

<220>

<223> Synthetic: expression vector - binary vector pUGAB7

<400> 1

tctagaacat	ggtggagcac	gacactctcg	tctactccaa	gaatatcaaa	gatacagtct	60
cagaagacca	gagggctatt	gagacttttc	aacaaagggt	aatatcgga	aacctcctcg	120
gattccattg	cccagctatc	tgctacttca	tcgaaaggac	agtagaaaag	gaagatggct	180
tctacaaatg	ccatcattgc	gataaaggaa	aggctatcgt	tcaagatgcc	tctaccgaca	240
gtgggtccaa	agatggaccc	ccaccacga	ggaacatcgt	ggaaaaagaa	gacgttccaa	300
ccacgtcttc	aaagcaagtg	gattgatgtg	atatctccac	tgacgtaagg	gatgacgcac	360
aatcccacta	tccttcgcaa	gacccttcct	ctatataagg	aagttcattt	catttgagaga	420
ggacctcgag	tggccaccat	gggcccagaa	cgacgcccg	ccgacatccg	ccgtgccacc	480
gaggcggaca	tgccggcggt	ctgcaccatc	gtcaaccact	acatcgagac	aagcacggtc	540
aacttccgta	ccgagccgca	ggaaccgcag	gagtgagcgg	acgacctcgt	ccgtctgcgg	600
gagcgctatc	cctggctcgt	cgccgaggtg	gacggcgagg	tcgcccggcat	cgcctacgcg	660
ggccccctga	aggcacgcaa	cgcctacgac	tggacggccg	agtcgaccgt	gtacgtctcc	720
ccccgccacc	agcggacggg	actgggctcc	acgctctaca	cccacctgct	gaagtccctg	780
gaggcacagg	gcttcaagag	cgtggctcgt	gtcatcgggc	tgcccaacga	cccgagcgtg	840
cgcatgcacg	aggcgctcgg	atatgcccc	cgcgcatgc	tgcgggcggc	cggcttcaag	900
cacgggaact	ggcatgacgt	gggtttctgg	cagctggact	tcagcctgcc	ggtaccgccc	960
cgtccggtcc	tgcccgtcac	cgagatctga	gatcacgcgt	tctagtccgc	aaaaatcacc	1020
agtctctctc	tacaaatcta	tctctctcta	ttttctcca	gaataatgtg	tgagtgttc	1080
ccagataagg	gaattagggt	tcttataggg	tttcgctcat	gtgttgagca	tataagaaac	1140
ccttagtatg	tatttgtatt	tgtaaaatac	ttctatcaat	aaaatttcta	attcctaaaa	1200
ccaaaatcca	gtgacctgca	ggcatgcaag	ctgatccact	agaggccatg	gcggccgcgt	1260
cgagcgatct	agtaacatag	atgacaccgc	gcgcgataat	ttatcctagt	ttgcgcgcta	1320
tattttgttt	tctatcgcgt	attaaatgta	taattgcggg	actctaatac	taaaaaccca	1380
tctcataaat	aacgtcatgc	attacatggt	aattattaca	tgcttaacgt	aattcaacag	1440
aaattatatg	ataatcatcg	caagaccggc	aacaggattc	aatcttaaga	aactttattg	1500
ccaaatgttt	gaacgatcgg	ggaaattcga	gctcggtagc	aattcccag	gctgtagccg	1560
acgatgggtgc	gccaggagag	ttgttgattc	attgtttgcc	tcctctgctgc	gggtttttcac	1620

cgaagtccat	gccagtcag	cgtttttgca	gcagaaaagc	cgccgacttc	ggtttgcggt	1680
cgcgagtga	gatccctttc	ttgttaccgc	caacgcgcaa	tatgccttgc	gaggtcgcaa	1740
aatcggcgaa	attccatacc	tgttcaccga	cgacggcgct	gacgcgatca	aagacgcggt	1800
gatacatatc	cagccatgca	caactgatact	cttcaactcca	catgtcggtg	tacattgagt	1860
gcagcccggc	taacgtatcc	acgccgtatt	cgggtgatgat	aatcggtga	tgcagtttct	1920
cctgccaggc	cagaagttct	ttttccagta	ccttctctgc	cgtttccaaa	tcgccgcttt	1980
ggacatacca	tccgtaataa	cggttcaggc	acagcacatc	aaagagatcg	ctgatgggat	2040
cgggtgtgagc	gtcgcagaac	attacattga	cgcaggtgat	cggacgcgtc	gggtcgagtt	2100
tacgcgttgc	ttccgccagt	ggcgcgaaat	attcccgtgc	accttgcgga	cgggtatccg	2160
gttcggttggc	aatactccac	atcaccacgc	ttgggtgggt	tttgtcacgc	gctatcagct	2220
ctttaatcgc	ctgtaagtgc	gcttgctgag	tttccccgtt	gactgcctct	tcgctgtaca	2280
gttcctttcgg	cttggtgccc	gcttcgaaac	caatgcctaa	agagaggtta	aagccgacag	2340
cagcagtttc	atcaatcacc	acgatgccat	gttcatctgc	ccagtcgagc	atctcttcag	2400
cgtaagggtta	atgcgaggta	cggtaggagt	tggccccaat	ccagtcatt	aatgcgtggt	2460
cgtgcaccat	cagcacgtta	tcgaatcctt	tgccacgcaa	gtccgcatct	tcatgacgac	2520
caaagccagt	aaagtagaac	ggtttgtggt	taatcaggaa	ctgttggccc	ttcactgcca	2580
ctgaccggat	gccgacgca	agcgggtaga	tatcacactc	tgtctggctt	ttggctgtga	2640
cgcacagttc	atagagataa	ccttcacccg	gttgccagag	gtgcggattc	accacttgca	2700
aagtcccgtc	agtgccttgt	ccagttgcaa	ccacctgttg	atccgcatca	cgcagttcaa	2760
cgctgacatc	accattggcc	accacctgcc	agtcaacaga	cgcgtgggtta	cagtcttgcg	2820
cgacatgcgt	caccacgggtg	atctcgctcca	cccaggtggt	cggcgtgggtg	tagagcatta	2880
cgctgcgatg	gattccggca	tagttaaaga	aatcatggaa	gtaagactgc	tttttcttgc	2940
cgttttcgtc	ggtaatcacc	attcccggcg	ggatagtctg	ccagttcagt	tcgttgttca	3000
cacaaacggt	gataccagct	gcacatcaac	aaattttggt	catatattag	aaaagttata	3060
aattaaaata	tacacactta	taaactacag	aaaagcaatt	gctatatact	acattctttt	3120
attttgaaaa	aaatatttga	aatattatat	tactactaat	taatgataat	tattatata	3180
atatcaaagg	tagaagcaga	aacttacgta	cacttttccc	ggcaataaca	tacggcgtga	3240
catcggttcc	aatggcgta	tagccgcctt	gatgtccat	cacttcttga	ttattgacct	3300
acactttgcc	gtaatgagt	accgcacgca	aacgcagcac	gatacgtgg	cctgcccac	3360
ctttcggtat	aaagacttcg	cgctgatacc	agacgttgcc	cgcataatta	cgaatatctg	3420
catcggcgaa	ctgatcgta	aaactgcctg	gcacagcaat	tggccggctt	tcttgtaacg	3480
cgctttccca	ccaacgctga	ccaattccac	agttttcgcg	atccagactg	aatgccaca	3540
ggccgctcgag	ttttttgatt	tcacgggttg	gggtttctac	aggacgtaac	ataagggact	3600
gacgtcgaat	ccactagtac	ctgcagaagt	aacaccaaac	aacagggtga	gcatcgacaa	3660
aagaaacagt	accaagcaaa	taaatagcgt	atgaaggcag	ggctaaaaaa	atccacatat	3720
agctgctgca	tatgccatca	tccaagtata	tcaagatcaa	aataattata	aaacatactt	3780
gtttattata	atagataggt	actcaagggt	agagcatatg	aatagatgct	gcatatgcca	3840
tcatgtatat	gcatcagtaa	aaccacatc	aacatgtata	cctatcctag	atcgatcccg	3900
tctgcggaac	ggctagagcc	atcccaggat	tcccaaaga	gaaacactgg	caagttagca	3960
atcagaacgt	gtctgacgta	caggtcgcat	ccgtgtacga	acgctagcag	cacggatcta	4020
acacaaacac	ggatctaaca	caaacatgaa	cagaagtaga	actaccgggc	cctaaccatg	4080
gaccggaacg	ccgatctaga	gaaggtagag	aggggggggg	ggggaggacg	agcggcgtag	4140
cttgaagcgg	aggtgccgac	gggtggattt	gggggagatc	tggttgtgtg	tgtgtgcgct	4200
ccgaacaaca	cgaggttggg	gaaagagggt	gtggaggggg	tgtctattta	ttacggcggg	4260
cgaggaaggg	aaagcgaagg	agcgggtggga	aaggaatccc	ccgtagctgc	cgggtgccgtg	4320
agaggaggag	gaggccgcct	gccgtgccgg	ctcacgtctg	ccgctccgcc	acgcaatttc	4380
tggatgccga	cagcggagca	agtccaacgg	tggagcggaa	ctctcgagag	gggtccagag	4440
gcagcgacag	agatgccgtg	ccgtctgctt	cgcttgccc	gacgcgacgc	tgctgggttcg	4500
ctgggttggtg	tccgttagac	tcgtcgatcg	tcgaagcttta	acaggctggc	attatctact	4560
cgaacaaga	aaaattgttc	cttagttttt	atgaattctt	aaagggtatt	tgtttaattt	4620
ttagtcactt	tattttattc	tattttatat	ttaaattatt	aaataaaaaa	actaaaatag	4680
agttttagtt	ttcttaattt	agaggctaaa	atagaataaa	atagatgtac	taaaaaaatt	4740
agtctataaa	aaccattaac	cctaaaccct	aatggatgt	actaataaaa	tggatgaagt	4800
attatatagg	tgaagctatt	tgcaaaaaaa	aaggagaaca	catgcacact	aaaaagataa	4860
aactgtagag	tcctgttgct	aaaataactca	attgtccttt	agaccatgtc	taactgttca	4920
tttatatgat	tctctaaaac	actgatatta	ttgtagtact	atagattata	ttattcgtag	4980
agtaaaagttt	aaatatatgt	ataaagatag	ataaactgca	cttcaaacaa	gtgtgacaaa	5040

aaaaatatgt	ggtaatTTTT	tataacttag	acatgcaatg	ctcattatct	ctagagaggg	5100
gcacgaccgg	gtcacgctgc	actgcagcct	agtaaggcct	taagggccag	atcttggggc	5160
cggtagccga	tcagattgtc	gtttcccgcc	ttcggtttaa	actatcagtg	tttgacagga	5220
tatattggcg	ggtaaacctt	agagaaaaga	gcgtttatta	gaataatcgg	atatttaaaa	5280
gggcgtgaaa	aggtttatcc	gttcgtccat	ttgtatgtgc	atgccaaacca	caggggtccc	5340
ctcgggagtg	cttggcattc	cgtgcgataa	tgacttctgt	tcaaccaccc	aaacgtcggg	5400
aagcctgacg	acggagcagc	attccaaaaa	gatcccttgg	ctcgtctggg	tcggctagaa	5460
ggtcgagtg	gctgctgtgg	cttgatccct	caacgcggtc	gcggacgtag	cgcagcgccg	5520
aaaaatcctc	gatcgcaa	ccgacgctgt	cgaaaagcgt	gatctgcttg	tcgctctttc	5580
ggccgacgtc	ctggccagtc	atcacgcgcc	aaagtccgt	cacaggatga	tctggcgcg	5640
gttgctggat	ctcgccttca	atccgggtct	gtggcgggaa	ctccacgaaa	atatccgaac	5700
gcagcaagat	atcgcgggtg	atctcgggtc	tgccctgggca	gtcgcgcgcg	acgcggttga	5760
tgtggagccc	gaaaaggatc	taggtgaaga	tcctttttga	taatctcatg	acaaaaatcc	5820
cttaacgtga	gttttcgttc	cactgagcgt	cagaccccg	agaaaagatc	aaaggatctt	5880
cttgagatcc	tttttttctg	cgcgtaatct	gctgcttgca	aacaaaaaaa	ccaccgctac	5940
cagcgggtgg	ttgtttgccc	gatcaagagc	taccaactct	ttttccgaag	gtaactggct	6000
tcagcagagc	gcagatacca	aatactgttc	ttctagtgt	gccgtagtta	ggccaccact	6060
tcaagaactc	tgtagcaccg	cctacatacc	tcgctctgct	aatcctgtta	ccagtggctg	6120
ctgccagtg	cgataagtcg	tgtcttaccg	ggttggactc	aagacgatag	ttaccggata	6180
aggcgcagcg	gtcgggctga	acgggggggt	cgtgcacaca	gccagcttg	gagcgaacga	6240
cctacaccga	actgagatac	ctacagcgtg	agctatgaga	aagcgccacg	cttcccgaag	6300
ggagaaaggc	ggacaggtat	ccggttaagc	gcagggtcgg	aacaggagag	cgcacgaggg	6360
agcttccagg	gggaaacgcc	tggatctttt	atagtcctgt	cgggtttcgc	cacctctgac	6420
ttgagcgtcg	atttttgtga	tgctcgtcag	gggggaggag	cctatggaaa	aacgccagca	6480
acgcggcctt	tttacgggtc	ctggcctttt	gctggccttt	tgctcacatg	ttctttcctg	6540
cgttatcccc	tgattctgtg	gataaccgat	taccgccttt	gagttagctg	ataccgctcg	6600
ccgcagccga	acgaccgagc	gcagcagctc	agttagcag	gaagcggaag	agcgctgat	6660
gcggatattt	ctccttacgc	atctgtgcgg	tatttcacac	cgcatatggt	gcactctcag	6720
tacaatctgc	tctgatgccg	catagttaag	ccagtataca	ctccgctatc	gctacgtgac	6780
tgggtcatgg	ctgcgccccg	acaccgcgca	acaccgctg	acgcgccttg	acgggcttgt	6840
ctgctcccgg	catccgctta	cagacaagct	gtgaccgtct	ccgggagctg	catgtgtcag	6900
aggttttcac	cgtcatcacc	gaaacgcgcg	agcgagggtt	acgtcgaggt	cgatccaacc	6960
cctccgctgc	tatagtgcag	tcggcttctg	acgttcagtg	cagccgtctt	ctgaaaacga	7020
catgtcgcac	aagtcctaag	ttacgcgaca	ggctgcgcgc	ctgccctttt	cctggcggtt	7080
tcttgtcgcg	tgtttttagtc	gcataaagta	gaataacttg	gactagaacc	ggagacatta	7140
cgccatgaac	aagagcgccg	ccgctggcct	gctgggctat	gcccgcgtca	gcaccgacga	7200
ccaggacttg	accaaccaac	gggcccgaact	gcacgcggcc	ggctgcacca	agctgttttc	7260
cgagaagatc	accggcacca	ggcgcgaccg	cccggagctg	gccaggatgc	ttgaccacct	7320
acgccctggc	gacgttgtga	cagtgaccag	gctagaccgc	ctggcccgcg	gcaccgcgga	7380
cctactggac	attgccgagc	gcatccagga	ggccggcgcg	ggcctgcgta	gcctggcaga	7440
gccgtggggc	gacaccacca	cgcgggccgg	ccgcatggtg	ttgaccgtgt	tcgccggcat	7500
tgccgagttc	gagcgttccc	taatcatcga	ccgcaccggg	agcgggcgcg	aggccgccaa	7560
ggcgcgaggc	gtgaagtttg	gccccgcgcc	taccctcacc	ccggcacaga	tcgcgcacgc	7620
ccgcgagctg	atcgaccagg	aaggccgcac	cgtgaaagag	gcggctgcac	tgcttggcgt	7680
gcategctcg	accctgtacc	gcgcacttga	gcgcagcgag	gaagtgcgcg	ccaccgaggg	7740
caggcggcgc	ggtgccttcc	gtgaggacgc	attgaccgag	gccgacgccc	tggcggccgc	7800
cgagaatgaa	cgccaagagg	aacaagcatg	aaaccgcacc	aggacggcca	ggacgaaccg	7860
tttttcatta	ccgaagagat	cgaggcggag	atgatccgcg	ccgggtacgt	gttcgagccg	7920
cccgcgacgt	tctcaaccgt	gcggctgcgt	gaaatcctgg	ccggtttgtc	tgatgccaa	7980
ctcgcggcct	ggcggcgag	cttggccgct	gaagaaaccg	agcgcgcgcg	tctaaaaagg	8040
tgatgtgtat	tttagtaaaa	cagcttgctg	catgcggctg	ctgcgtatat	gatgcgatga	8100
gtaataaacc	aaatacgcaa	ggggaacgca	tgaaggttat	cgctgtactt	aaccagaaag	8160
gcgggtcagg	caagacgacc	atcgcaaccc	atctagcccg	cgccctgcaa	ctcgcggggg	8220
ccgatgttct	gttagtcgat	tccgatcccc	aggcagtgct	ccgcgatttg	gcggccgtgc	8280
gggaagatca	accgctaacc	gttgctcgga	tcgaccgccc	gacgattgac	cgcgacgtga	8340
aggccatcgg	ccggcgcgac	ttcgtagtga	tcgacggagc	gccccaggcg	gcggacttgg	8400
ctgtgtccgc	gatcaaggca	gccgacttcc	tgctgattcc	ggtgcagcca	agcccttacg	8460

acatatgggc	caccgcccac	ctggtggagc	tggttaagca	gcgcattgag	gtcacggatg	8520
gaaggctaca	agcggccttt	gtcgtgtcgc	gggcatcaa	aggcacgcgc	atcggcgggtg	8580
aggttgccga	ggcgctggcc	gggtacgagc	tgccattct	tgagtcccgt	atcacgcagc	8640
gcgtgagcta	cccaggcact	gccgccgccg	gcacaaccgt	tcttgaatca	gaacccgagg	8700
gcgacgctgc	ccgcgaggtc	caggcgctgg	ccgctgaaat	taaatcaaaa	ctcattttgag	8760
ttaatgaggt	aaagagaaaa	tgagcaaaa	cacaaacacg	ctaagtgccg	gccgtccgag	8820
cgcacgcagc	agcaaggctg	caacgttggc	cagcctggca	gacacgccag	ccatgaagcg	8880
ggtcaacttt	cagttgccgg	cggaggatca	caccaagctg	aagatgtacg	cggtagccca	8940
aggcaagacc	attaccgagc	tgctatctga	atacatcgcg	cagctaccag	agtaaatgag	9000
caaatgaata	aatgagtaga	tgaattttag	cggctaaagg	aggcggcatg	gaaaatcaag	9060
aacaaccagg	caccgacgcg	gtggaatgcc	ccatgtgtgg	aggaacgggc	ggttggccag	9120
gcgtaagcgg	ctgggttgtc	tgccggccct	gcaatggcac	tggaaccccc	aagcccgagg	9180
aatcggcgtg	agcggtcgca	aaccatccgg	cccggtaaca	atcggcgcg	cgctgggtga	9240
tgacctgggtg	gagaagttag	aggcggcgca	ggccgccag	cggcaacgca	tcgaggcaga	9300
agcacgcccc	ggtgaatcgt	ggcaagcggc	cgctgatcga	atccgcaaag	aatcccggca	9360
accgccggca	gccgggtgcg	cgtcgattag	gaagccgccc	aagggcgacg	agcaaccaga	9420
ttttttcgtt	ccgatgctct	atgacgtggg	caccgcgat	agtcgcagca	tcattggacgt	9480
ggccgttttc	cgtctgtcga	agcgtgaccg	acgagctggc	gaggtgatcc	gctacgagct	9540
tccagacggg	cacgtagagg	tttccgcagg	gccggccggc	atggcgagt	tgtgggatta	9600
cgacctggta	ctgatggcgg	tttcccatct	aaccgaatcc	atgaaccgat	accgggaagg	9660
gaagggagac	aagcccggcc	gcgtgttccg	tccacacgtt	gcggacgtac	tcaagtctctg	9720
ccggcgagcc	gatggcgga	agcagaaaga	cgacctggta	gaaacctgca	ttcggttaaa	9780
caccacgcac	gttgccatgc	agcgtacgaa	gaaggccaag	aacggccgcc	tgggtgacggt	9840
atccgaggg	gaagccttga	ttagccgcta	caagatcgta	aagagcgaaa	ccgggcccgc	9900
ggagtacatc	gagatcgagc	tagctgattg	gatgtaccgc	gagatcacag	aaggcaagaa	9960
ccgggacgtg	ctgacggttc	accccgatta	ctttttgatc	gatcccggca	tcggccggtt	10020
tctctaccgc	ctggcacgcc	gcgccgcagg	caaggcagaa	gccagatggt	tgttcaagac	10080
gatctacgaa	cgcagtggca	gcgccggaga	gttcaagaag	ttctgtttca	ccgtgcgcaa	10140
gctgatcggg	tcaaatgacc	tgccggagta	cgatttgaag	gaggaggcgg	ggcaggcttg	10200
ccgatcccta	gtcatgcgct	accgcaacct	ctcagagggc	gaagcatccg	ccggttcccta	10260
atgtacggag	cagatgctag	ggcaaattgc	cctagcagg	gaaaaagggtc	gaaaagggtct	10320
ctttcctgtg	gatagcacgt	acattgggaa	cccaaagccg	tacattggga	accggaaccc	10380
gtacattggg	aacccaaagc	cgtacattgg	gaaccgggtca	cacatgtaag	tgactgatat	10440
aaaagagaaa	aaaggcgatt	tttccgccta	aaactcttta	aaacttatta	aaactcttaa	10500
aaccgcctg	gcctgtgcat	aactgtctgg	ccagcgcaca	gccgaagagc	tgcaaaaagc	10560
gcctaccctt	cggtcgctgc	gtccctacg	ccccgcgct	tcgcgtcggc	ctatcgcggc	10620
cgtggccgc	tcaaaaatgg	ctggcctacg	gccaggcaat	ctaccagggc	gcggacaagc	10680
cgcgccgtcg	ccactcgacc	gccggcgccc	acatcaaggc	accggtgggt	atgcctgacg	10740
atgcgtggag	accgaaacct	tgcgctcggt	cgccagccag	gacagaaatg	cctcgacttc	10800
gctgctgcc	aaggttgccg	ggtgacgcac	accgtggaaa	cggatgaagg	cacgaaccca	10860
gtggacataa	gcctgttcgg	ttcgtaagct	gtaatgcaag	tagcgtatgc	gctcacgcaa	10920
ctggtccaga	accttgaccg	aacgcagcgg	tggtaacggc	gcagtggcgg	ttttcatggc	10980
ttgttatgac	tgtttttttg	gggtacagtc	tatgcctcgg	gcattccaagc	agcaagcgcg	11040
ttacgccgtg	ggtcgatggt	tgatgttatg	gagcagcaac	gatgttacgc	agcagggcag	11100
tcgccctaaa	acaaagttaa	acatcatgag	ggaagcgggtg	atcgccgaag	tatcgactca	11160
actatcagag	gtagtggcg	tcacgcagcg	ccatctcgaa	ccgacgttgc	tgcccgtaga	11220
tttgtacggc	tccgcagtgg	atggcggcct	gaagccacac	agtgatattg	atttgctgggt	11280
tacggtgacc	gtaaggcttg	atgaaacaac	cgcgcgagct	ttgatcaacg	accttttgga	11340
aacttcggct	tcccctggag	agagcgagat	tctccgcgct	gtagaagtca	ccattgttgt	11400
gcacgcagac	atcattccgt	ggcgttatcc	agctaagcgc	gaactgcaat	ttggagaatg	11460
gcagcgcaat	gacattcttg	caggatatctt	cgagccagcc	acgatcgaca	ttgatctggc	11520
tatcttgctg	acaaaagcaa	gagaacatag	cgttgccttg	gtaggtccag	cggcgaggga	11580
actctttgat	ccggttccctg	aacaggatct	atttgaggcg	ctaaatgaaa	ccttaacgct	11640
atggaactcg	ccgcccgaact	gggctggcga	tgagcgaaat	gtagtgttta	cgttgtcccg	11700
catttggtac	agcgcagtaa	ccggcaaaat	cgcgccgaag	gatgtcgctg	ccgactgggc	11760
aatggagcgc	ctgccggccc	agtatcagcc	cgtcatactt	gaagctagac	aggcttatct	11820
tggacaagaa	gaagatcgct	tggcctcgcg	cgcagatcag	ttggaagaat	ttgtccacta	11880


```

cgtgaaaggc gagatcacca aggtagtcgg caaataatgt ctaacaattc gttcaagccg 11940
acgccgcttc gcggcgcggc ttaactcaag cgtttagatgc actaagcaca taattgctca 12000
cagccaaact atcagggtcaa gtctgctttt attattttta agcgtgcata ataagcccta 12060
cacaaattgg gagatatatc atgaaaggct ggctttttct tgttatcgca atagttggcg 12120
aagtaatcgc aacatagctt gcttggtcgt tccgcgtgaa cgtcggctcg attgtacctg 12180
cgttcaaata ctttgcgatc gtggtgcgcg cctgcccggt gcgtcggctg atctcacgga 12240
tcgactgctt ctctcgcaac gccatccgac ggatgatgtt taaaagtcct atgtggatca 12300
ctccgttgcc ccgtcgctca ccgtggtggg ggggaagggtgc acatggctca gttctcaatg 12360
gaaattatct gcctaaccgg ctcagttctg cgtagaaacc aacatgcaag ctccaccggg 12420
tgcaaagcgg cagcggcggc aggatataat caattgtaaa tggcttcatt tccgggaaat 12480
ctacatggat cagcaatgag tatgatggtc aatatggaga aaaagaaaga gtaattacca 12540
atTTTTTTTc aattcaaaaa tgtagatgtc cgcagcgtaa ttataaaatg aaagtacatt 12600
ttgataaaac gacaaattac gatccgctcg atttataggc gaaagcaata aacaaattat 12660
tctaattcgg aaatctttat ttcgacgtgt ctacattcac gtccaaatgg gggcttagat 12720
gagaaacttc acgatcggc                                     12739

```

```

<210> 2
<211> 11195
<212> DNA
<213> Artificial sequence

```

```

<220>
<223> Synthetic: expression vector - binary vector pSUNUbi-GFP

```

```

<400> 2
aatattcaaa caaacacata cagcgcgact tatcatggac atacaaatgg acgaacggat 60
aaaccttttc acgccctttt aaatatccga ttattctaataaacgctctt ttctcttagg 120
tttaccgcgc aatatatcct gtcaaacact gatagtttaa actgaaggcg ggaaacgaca 180
atcagatcta gtaggaaaca gctatgacca tgattacgcc aagctggccg cgtcgagcga 240
tctagtaaca tagatgacac cgcgcgcgat aatttatcct agtttgcgcg ctatattttg 300
ttttctatcg cgtattaaat gtataattgc gggactctaa tcataaaaac ccatctcata 360
aataacgtca tgcattacat gttaattatt acatgcttaa cgtaattcaa cagaaattat 420
atgataatca tcgcaagacc ggcaacagga ttcaatctta agaaacttta ttgccaaatg 480
tttgaacgat cggggaaatt cgagtcgact ctagaggatc cccggccgcc ccgactctag 540
tcgagttact tgtacagctc gtccatgccg agagtgatcc cggcggcggt cacgaactcc 600
agcaggacca tgtgatcgcg cttctcgttg gggctcttgc tcagggcgga ctgggtgctc 660
aggtagtggt tgtcgggcag cagcacgggg ccgtcgccga tgggggtgtt ctgctggtag 720
tggtcggcga gctgcacgct gccgtcctcg atgttggtgc gggctctgaa gttcaccttg 780
atgccgttct tctgcttgtc ggcggtgata tagacctgtg ggctgttgta gttgtactcc 840
agcttggtgcc ccaggatggt gccgtcctcc ttgaagtcga tgcccttcag ctcgatgcgg 900
ttcaccaggg tgtcgccctc gaacttcacc tcggcgcggg tcttgtagtt gccgtcgtcc 960
ttgaagaaga tgggtgcgctc ctggacgtag ccttcgggca tggcggactt gaagaagtcg 1020
tgetgcttca tgtggtcggg gtagcgggag aagcactgca cgccgtaggt caaggtggtc 1080
acgaggggtg gccagggcac gggcagcttg ccggtggtgc agatgaactt cagggtcagc 1140
ttgccgtagg tggcatcgcc ctgcacctcg ccggacacgc tgaacttggt gccgtttacg 1200
tcgccgtcca gctcgaccag gatgggcacc accccgggtga acagctctc gcccttgctc 1260
accatggttg ctttaccac agtaccggaa tgccaagctt acttagatcg cagatctact 1320
agtatgatgg gtaccgggg gatccgatat cgccggggt gcagaagtaa caccaacaa 1380
caggggtgagc atcgacaaa gaaacagtac caagcaata aatagcgat gaaggcagg 1440
ctaaaaaaat ccacatatag ctgctgcata tgccatcatc caagtatatc aagatcaaaa 1500
taattataaa acatacttgt ttattataat agataggtac tcaagggttag agcatatgaa 1560
tagatgctgc atatgccatc atgtatatgc atcagtaaaa cccacatcaa catgtatacc 1620
tactctagat cgatatttcc atccatctta aactcgtaac tatgaagatg tatgacacac 1680
acatacagtt ccaaaattaa taaatacacc aggtagtttg aaacagtatt ctactccgat 1740
ctagaacgaa tgaacgaccg cccaaccaca ccacatcatc acaaccaagc gaacaaaaag 1800
catctctgta tatgcatcag taaaaccgcg atcaacatgt atacctatcc tagatcgata 1860

```


tttccatcca	tcattcttcaa	ttcgtaacta	tgaatatgta	tggcacacac	atacagatcc	1920
aaaattaata	aatccaccag	gtagtttgaa	acagaattct	actccgatct	agaacgaccg	1980
cccaaccaga	ccacatcatc	acaaccaaga	caaaaaaaag	catgaaaaga	tgacccgaca	2040
aacaagtgca	cggcatatat	tgaataaaag	gaaaagggca	aaccaaacc	tatgcaacga	2100
aacaaaaaaa	atcatgaaat	cgatcccgtc	tgcggaacgg	ctagagccat	cccaggattc	2160
cccaaagaga	aacactggca	agtttagcaat	cagaacgtgt	ctgacgtaca	ggctcgcatcc	2220
gtgtacgaac	gctagcagca	cggatctaac	acaaacacgg	atctaacaca	aacatgaaca	2280
gaagtagaac	taccgggccc	taaccatgga	cgggaacgcc	gatctagaga	aggtagagag	2340
gggggggggg	ggaggacgag	cggcgctacct	tgaagcggag	gtgccgacgg	gtggatttgg	2400
gggagatctg	gttgtgtgtg	tgtgcgctcc	gaacaacacg	agggtgggga	aagaggggtgt	2460
ggaggggggtg	tctattttatt	acggcggggcg	aggaaggga	agcgaaggag	cgggtgggaaa	2520
ggaatccccc	gtagctgccg	tgccgtgaga	ggaggaggag	gccgcctgcc	gtgccggctc	2580
acgtctgccg	ctccgccacg	caatttctgg	atgccgacag	cggagcaagt	ccaacgggtg	2640
agcggaaactc	tcgagagggg	tccagaggca	gcgacagaga	tgccgtgccg	tctgcttcgc	2700
ttggcccgcac	gcgacgctgc	tggttcgctg	gttggtgtcc	gttagactcg	tcgacggcgt	2760
ttaacagggt	ggcattatct	actcgaaaca	agaaaaatgt	ttccttagtt	tttttaattt	2820
cttaaagggt	atltgtttta	tttttagtca	ctttatttta	ttctatttta	tattctaaatt	2880
attaaataaa	aaaactaaaa	tagagtttta	gttttcttaa	tttagaggct	aaaatagaat	2940
aaaatagatg	tactaaaaaa	attagtctat	aaaaaccatt	aaccctaaac	cctaaatgga	3000
tgtactaata	aatggatga	agtattatat	agggtgaagct	atttgcaaaa	aaaaaggaga	3060
acacatgcac	actaaaaaga	taaaactgta	gagtcctgtt	gtcaaaatac	tcaattgtcc	3120
tttagaccat	gtctaactgt	tcatattatat	gattctctaa	aacactgata	ttattgtagt	3180
actatagatt	atattattcg	tagagtaaag	tttaaatata	tgtataaaga	tagataaact	3240
gcacttcaaa	caagtgtgac	aaaaaaaaata	tgtggtaatt	ttttataact	tagacatgca	3300
atgctcatta	tctctagaga	ggggcacgac	cgggtcacgc	tgactgcag	gaattcgatg	3360
ggctcgagggt	accgagctcg	gtacccactg	gattttgggt	ttaggaatta	gaaattttat	3420
tgatagaagt	atltttacaaa	tacaaatata	tactaagggt	ttcttatatg	ctcaacacat	3480
gagcgaaacc	ctataagaac	cctaattccc	ttatctggga	actactcaca	cattattata	3540
gagagagata	gatttgtaga	gagagactgg	tgatttcagc	ggcatgcctg	caggctcgact	3600
cagatctggg	taactggcct	aactggcctt	ggaggagctg	gcaactcaaa	atccctttgc	3660
caaaaaccaa	catcatgcca	tccaccatgc	ttgtatccag	ctgcgcgcaa	tgtaccccg	3720
gctgtgtatc	ccaaagcctc	atgcaacctt	acagatggat	cgtttggaag	gcctataaca	3780
gcaaccacag	acttaaaacc	ttgcgcctcc	atagacttaa	gcaaagtgtg	gtacaatgtg	3840
gatcctaggc	ccaacctttg	atgcctatgt	gacacgtaaa	cagtactctc	aactgtccaa	3900
tcgtaagcgt	tcctagcctt	ccagggccca	gcgtaagcaa	taccagccac	aacaccctca	3960
acctcagcaa	ccaaccaagg	gtatctatct	tgcaacctct	ctagatcatc	aatccactct	4020
tgtggtgttt	gtggctctgt	cctaaagtcc	actgtagacg	tctcaatgta	atgggttaacg	4080
atatcacaaa	ccgcggccat	atcagctgct	gtagctggcc	taatctcaac	tggtctctctc	4140
tcgggagaca	tgtcgactct	agaggatccc	ccgggctgca	gaagtaacac	caaacaacag	4200
ggtgagcatc	gacaaaagaa	acagtaccaa	gcaaataaat	agcgtatgaa	ggcagggcta	4260
aaaaaatcca	catatagctg	ctgcatatgc	catcatccaa	gtatatcaag	atcaaaataa	4320
ttataaaaaca	tacttgttta	ttataataga	taggtactca	aggtttagagc	atatgaatag	4380
atgctgcata	tgccatcatg	tatatgcac	agtaaaaccc	acatcaacat	gtatacctat	4440
cctagatcga	tatttccatc	catcttaaac	tcgtaactat	gaagatgtat	gacacacaca	4500
tacagttcca	aaattaataa	atacaccagg	tagtttgaaa	cagtattcta	ctccgatcta	4560
gaacgaatga	acgaccgccc	aaccacacca	catcatcaca	accaagcgaa	caaaaagcat	4620
ctctgtatat	gcatcagtaa	aaccgcgcatc	aacatgtata	cctatcctag	atcgatatatt	4680
ccatccatca	tcttcaattc	gtaactatga	atatgtatgg	cacacacata	cagatccaaa	4740
attaataaat	ccaccaggta	gtttgaaaca	gaattctact	ccgatctaga	acgaccgccc	4800
aaccagacca	catcatcaca	accaagacaa	aaaaaagcat	gaaaagatga	cccgacaaac	4860
aagtgcacgg	catatattga	aataaaaggaa	aagggcaaac	caaaccctat	gcaacgaaac	4920
aaaaaaaatc	atgaaatcga	tcccgctctgc	ggaacggcta	gagccatccc	aggattcccc	4980
aaagagaaac	actggcaagt	tagcaatcag	aacgtgtctg	acgtacagg	cgcacccgtg	5040
tacgaacgct	agcagcacgg	atctaacaca	aacacggatc	taacacaaac	atgaacagaa	5100
gtagaactac	cgggccctaa	ccatggaccg	gaacgccgat	ctagagaagg	tagagagggg	5160
gggggggggga	ggacgagcgg	cgtaccttga	agcggagggtg	ccgacgggtg	gatttggggg	5220
agatctgggt	gtgtgtgtgt	gcgctccgaa	caacacgagg	ttgggggaaag	agggtgtgga	5280

gggggtgtct	at tt t t a t t a c g	g c g g g c g a g g	a a g g g a a a g c	g a a g g a g c g g	t g g g a a a g g a	5340
at c c c c c g t a	g c t g c c g t g c	c g t g a g a g g a	g g a g g a g g c c	g c c t g c c g t g	c c g g c t c a c g	5400
t c t g c c g c t c	c g c c a c g c a a	t t t c t g g a t g	c c g a c a g c g g	a g c a a g t c c a	a c g g t g g a g c	5460
g g a a c t c t c g	a g a g g g g t c c	a g a g g c a g c g	a c a g a g a t g c	c g t g c c g t c t	g c t t c g c t t g	5520
g c c c g a c g c g	a c g c t g c t g g	t t c g c t g g t t	g g t g t c c g t t	a g a c t c g t c g	a c g g c g t t t a	5580
a c a g g c t g g c	a t t a t c t a c t	c g a a a c a a g a	a a a t g t t t c	c t t a g t t t t t	t t a a t t t c t t	5640
a a a g g g t a t t	t g t t t a a t t t	t t a g t c a c t t	t a t t t t a t t c	t a t t t t a t a t	c t a a a t t a t t	5700
a a a t a a a a a a	a c t a a a a t a g	a g t t t t a g t t	t t c t t a a t t t	a g a g g c t a a a	a t a g a a t a a a	5760
a t a g a t g t a c	t a a a a a a a t t	a g t c t a t a a a	a a c c a t t a a c	c c t a a a c c c t	a a a t g g a t g t	5820
a c t a a t a a a a	t g g a t g a a g t	a t t a t a t a g g	t g a a g c t a t t	t g c a a a a a a a	a a g g a g a a c a	5880
c a t g c a c a c t	a a a a a g a t a a	a a c t g t a g a g	t c c t g t t g t c	a a a a t a c t c a	a t t g t c c t t t	5940
a g a c c a t g t c	t a a c t g t t c a	t t t a t a t g a t	t c t c t a a a a c	a c t g a t a t t a	t t g t a g t a c t	6000
a t a g a t t a t a	t t a t t c g t a g	a g t a a a g t t t	a a a t a t a t g t	a t a a a g a t a g	a t a a a c t g c a	6060
c t t c a a a c a a	g t g t g a c a a a	a a a a t a t g t	g g t a a t t t t t	t a t a a c t t a g	a c a t g c a a t g	6120
c t c a t t a t c t	c t a g a g a g g g	g c a c g a c c g g	g t c a c g c t g c	a c t g c a g g a a	t t c g a t a t c a	6180
a g c t g g c t g a	g t g g c t c c t t	c a a c g t t g c g	g t t c t g t c a g	t t c c a a a c g t	a a a a c g g c t t	6240
g t c c c g c g t c	a t c g g c g g g g	g t c a t a a c g t	g a c t c c c t t a	a t t c t c c g c t	c a t g a t c a g a	6300
t t g t c g t t t c	c c g c c t t c a g	t t t a a a c t a t	c a g t g t t t g a	c a g g a t c a c t	g c t t g g t a a t	6360
a a t t g t c a t t	a g a t t g t t t t	t a t g c a t a g a	t g c a c t c g a a	a t c a g c c a a t	t t t a g a c a a g	6420
t a t c a a a c g g	a t g t t a a t t c	a g t a c a t t a a	a g a c g t c c g c	a a t g t g t t a t	t a a g t t g t c t	6480
a a g c g t c a a t	t t g t t t a c a c	c a c a a t a t a t	c c t g c c a c c a	g c c a g c c a a c	a g c t c c c c g a	6540
c c g g c a g c t c	g g c a c a a a a t	c a c c a c g c g t	c t a a a a a g g t	g a t g t g t a t t	t g a g t a a a a c	6600
a g c t t g c g t c	a t g c g g t c g c	t g c g t a t a t g	a t g c g a t g a g	t a a a t a a a c a	a a t a c g c a a g	6660
g g g a a c g c a t	g a a g g t t a t c	g c t g t a c t t a	a c c a g a a a g g	c g g g t c a g g c	a a g a c g a c c a	6720
t c g c a a c c c a	t c t a g c c c g c	g c c c t g c a a c	t c g c c g g g g c	c g a t g t t c t g	t t a g t c g a t t	6780
c c g a t c c c c a	g g g c a g t g c c	c g c g a t t g g g	c g g c c g t g c g	g g a a g a t c a a	c c g c t a a c c g	6840
t t g t c g g c a t	c g a c c g c c c g	a c g a t t g a c c	g c g a c g t g a a	g g c c a t c g g c	c g g c g c g a c t	6900
t c g t a g t g a t	c g a c g g a g c g	c c c c a g g c g g	c g g a c t t g g c	t g t g t c c g c g	a t c a a g g c a g	6960
c c g a c t t c g t	g c t g a t t c c g	g t g c a g c c a a	g c c c t t a c g a	c a t a t g g g c c	a c c g c c g a c c	7020
t g g t g g a g c t	g g t t a a g c a g	c g c a t t g a g g	t c a c g g a t g g	a a g g c t a c a a	g c g g c c t t t g	7080
t c g t g t c g c g	g g c g a t c a a a	g g c a c g c g c a	t c g g c g g t g a	g g t t g c c g a g	g c g c t g g c c g	7140
g g t a c g a g c t	g c c c a t t c t t	g a g t c c c g t a	t c a c g c a g c g	c g t g a g c t a c	c c a g g c a c t g	7200
c c g c c g c c g g	c a c a a c c g t t	c t t g a a t c a g	a a c c c a g a g g	c g a c g c t g c c	c g c g a g g t c c	7260
a g g c g c t g g c	c g c t g a a a t t	a a a t c a a a a c	t c a t t t g a g t	t a a t g a g g t a	a a g a g a a a a t	7320
g a g c a a a a g c	a c a a a c a c g c	t a a g t g c c g g	c c g t c c g a g c	g c a c g c a g c a	g c a a g g c t g c	7380
a a c g t t g g c c	a g c c t g g c a g	a c a c g c c a g c	c a t g a a g c g g	g t c a a c t t t c	a g t t g c c g g c	7440
g g a g g a t c a c	a c c a a g c t g a	a g a t g t a c g c	g g t a c g c c a a	g g c a a g a c c a	t t a c c g a g c t	7500
g c t a t c t g a a	t a c a t c g c g c	a g c t a c c a g a	g t a a a t g a g c	a a a t g a a t a a	a t g a g t a g a t	7560
g a a t t t t a g c	g g c t a a a g g a	g g c g g c a t g g	a a a a t c a a g a	a c a a c c a g g c	a c c g a c g c c g	7620
t g g a a t g c c c	c a t g t g t g g a	g g a a c g g g c g	g t t g g c c a g g	c g t a a g c g g c	t g g g t t g t c t	7680
g c c g g c c c t g	c a a t g g c a c t	g g a a c c c c c a	a g c c c g a g g a	a t c g g c g t g a	g c g g t c g c a a	7740
a c c a t c c g g c	c c g g t a c a a a	t c g g c g c g g c	g c t g g g t g a t	g a c c t g g t g g	a g a a g t t g a a	7800
g g c c g c g c a g	g c c g c c c a g c	g g c a a c g c a t	c g a g g c a g a a	g a c g c c c c g g	t g a a t c g t g g	7860
c a a g g g g c c g	c t g a t c g a a t	c c g c a a a g a a	t c c c g g c a a c	c g c c g g c a g c	c g g t g c g c c g	7920
t c g a t t a g g a	a g c c g c c c a a	g g g c g a c g a g	c a a c c a g a t t	t t t t c g t t c c	g a t g c t c t a t	7980
g a c g t g g g c a	c c c g c g a t a g	t c g c a g c a t c	a t g g a c g t g g	c c g t t t t c c g	t c t g t c g a a g	8040
c g t g a c c g a c	g a g c t g g c g a	g g t g a t c c g c	t a c g a g c t t c	c a g a c g g g c a	c g t a g a g g t t	8100
t c c g c a g g g c	c g g c c g g c a t	g g c c a g t g t g	t g g g a t t a c g	a c c t g g t a c t	g a t g g c g g t t	8160
t c c c a t c t a a	c c g a a t c c a t	g a a c g a t a c	c g g g a a g g g a	a g g g a g a c a a	g c c c g g c c g c	8220
g t g t t c c g t c	c a c a c g t t g c	g g a c g t a c t c	a a g t t c t g c c	g g c g a g c c g a	t g g c g g a a a g	8280
c a g a a a g a c g	a c c t g g t a g a	a a c c t g c a t t	c g g t t a a a c a	c c a c g c a c g t	t g c c a t g c a g	8340
c g t a c g a a g a	a g g c c a a g a a	c g g c c g c c t g	g t g a c g g t a t	c c g a g g g t g a	a g c c t t g a t t	8400
a g c c g c t a c a	a g a t c g t a a a	g a g c g a a a c c	g g g c g g c c g g	a g t a c a t c g a	g a t c g a g c t a	8460
g c t g a t t g g a	t g t a c c g c g a	g a t c a c a g a a	g g c a a g a a c c	c g g a c g t g c t	g a c g g t t c a c	8520
c c c g a t t a c t	t t t t g a t c g a	t c c c g g c a t c	g g c c g t t t t c	t c t a c c g c c t	g g c a c g c c g c	8580
g c c g c a g g c a	a g g c a g a a g c	c a g a t g g t t g	t t c a a g a c g a	t c t a c g a a c g	c a g t g g c a g c	8640
g c c g g a g a g t	t c a a g a a g t t	c t g t t t c a c c	g t g c g c a a g c	t g a t c g g g t c	a a a t g a c c t g	8700


```

ccggagtagc atttgaagga ggaggcgggg caggctggcc cgatcctagt catgcgctac 8760
cgcaacctga tcgagggcga agcatccgcc ggttcctaata gtacggagca gatgctaggg 8820
caaattgccc tagcagggga aaaaggctga aaaggctctt ttctgtgga tagcacgtac 8880
attgggaacc caaagccgta cattgggaac cggaaccgct acattgggaa cccaaagccg 8940
tacattggga accggtcaca catgtaagt actgatataa aagagaaaaa aggcgatttt 9000
tccgcctaaa actctttaa acttattaaa actcttaaaa cccgcctggc ctgtgcataa 9060
ctgtctggcc agcgcacagc cgaagagctg caaaaagcgc ctacccttcg gtcgctgcgc 9120
tccctacgcc ccgccgcttc gcgtcggcct atcgcgccct atgcggtgtg aaataaccgca 9180
cagatgcgta aggagaaaaat accgcatcag gcgctcttcc gcttcttcgc tctactgactc 9240
gctgcgctcg gtcgttcggc tgcggcgagc ggtatcagct cactcaaagg cggtaatagc 9300
gttatccaca gaatcagggg ataacgcagg aaagaacatg tgagcaaaaag gccagcaaaa 9360
ggccaggaac cgtaaaaagg ccgctgtgct ggcgtttttc cataggctcc gccccctga 9420
cgagcatcac aaaaatcgac gctcaagtca gaggtggcga aaccgcagag gactataaag 9480
ataccaggcg tttccccctg gaagctccct cgtgcgctct cctgttccga ccctgccgct 9540
taccggatac ctgtccgctt ttctcccttc gggaagcgtg gcgctttctc atagctcacg 9600
ctgtagggtat ctcatgttcg tgtaggctgt tcgctccaag ctgggctgtg tgcacgaacc 9660
ccccgttcag ccgcaccgct gcgccttata cggttaactat cgtcttgagt ccaaccgggt 9720
aagacacgac ttatcgccac tggcagcagc cactggtaac aggattagca gagcgaggta 9780
tgtaggcggt gctacagagt tcttgaagt gtggcctaac tacggctaca ctagaaggac 9840
agtatttggt atctgcgctc tgcgaagcc agttaccttc ggaaaaagag ttggtagctc 9900
ttgatccggc aaacaaacca ccgctggtag cgggtggtttt tttgtttgca agcagcagat 9960
tacgcgcaga aaaaaggat ctcaagaaga tcctttgatc ttttctacgg ggtctgacgc 10020
tcagtggaa c gaaaactcac gttaagggtat tttggctcatg catgatatat ctcccaattt 10080
gtgtagggt tattatgcac gcttaaaaat aataaaagca gacttgacct gatagtttgg 10140
ctgtgagcaa ttatgtgctt agtgcacta acgcttgagt taagccgcgc cgcgaagcgg 10200
cgtcggcttg aacgaatttc tagctagaca ttatttgccg actaccttgg tgatctcgcc 10260
tttcacgtag tggacaaatt cttccaactg atctgcgcgc gaggccaagc gatcttcttc 10320
ttgtccaaga taagcctgtc tagcttcaag tatgacgggc tgatactggg ccggcaggcg 10380
ctccattgcc cagtcggcag cgacatcctt ccgcgcgatt ttgccggtta ctgcgctgta 10440
ccaaatgcgg gacaacgtaa gcaactacat tcgctcatcg ccagcccagt cgggcggcga 10500
gttccatagc gtttaagggtt catttagcgc ctcaaataga tcctgttcag gaaccggatc 10560
aaagagttcc tccgccgctg gacctacca ggcaacgcta tgttctcttg cttttgtcag 10620
caagatagcc agatcaatgt cgatcgtggc tggtcgaag atacctgcaa gaatgtcatt 10680
gcgctgccat tctccaaatt gcagttcgcg cttagctgga taacgccacg gaatgatgtc 10740
gtcgtgcaca acaatggtga cttctacagc gcggagaatc tcgctctctc caggggaagc 10800
cgaagtttcc aaaaggctcg tgatcaaagc tcgcccgtt gtttcatcaa gccttacggg 10860
caccgtaacc agcaaatcaa tatcactgtg tggttcagg ccgccatcca ctgcggagcc 10920
gtacaaatgt acggccagca acgtcggttc gagatggcgc tcgatgacgc caactacctc 10980
tgatagttga gtcgatactt cggcgatcac cgcttcccc atgatgttta actttgtttt 11040
agggcgactg ccctgctgcg taacatcggt gctgctccat aacatcaaac atcgaccac 11100
ggcgtaacgc gcttgctgct tggatgccg aggcatagac tgtaccccaa aaaaacagtc 11160
ataacaagcc atgaaaaccg ccactgcgtt ccatg 11195

```

<210> 3

<211> 12415

<212> DNA

<213> Artificial sequence

<220>

<223> Synthetic: expression vector - binary vector pSUNUbiGUS

<400> 3

```

aatattcaaa caaacacata cagcgcgact tatcatggac atacaaatgg acgaacggat 60
aaaccttttc acgccctttt aaatatccga ttattctaata aaacgctctt ttctcttagg 120
tttaccgcgc aatatatcct gtcaaact gatagtttaa actgaaggcg ggaaacgaca 180
atcagatcta gtaggaaca gctatgacca tgattacgcc aagcttgcat gcctgcagg 240

```


cgaaattcga	gctcgggtacc	cggtcactgg	atthttggttt	taggaattag	aaatthttatt	300
gatagaagta	ttttacaaat	acaaatacat	actaagggtt	tcttatatgc	tcaacacatg	360
agcgaaaccc	tataagaacc	ctaattccct	tatctgggaa	ctactcacac	attattcttg	420
agaaaaatag	agagagatag	atthtgtagag	agagactggg	gattthttg	ccgggtaccg	480
agctcggtag	caattcccga	ggctgtagcc	gacgatggg	cgccaggaga	gttggtgatt	540
cattgtttgc	ctccctgctg	cggtthttca	ccgaagttca	tgccagtcca	gcgtthttgc	600
agcagaaaag	ccgccgactt	cggtttgcgg	tcgcgagtga	agatcccttt	cttggtaccg	660
ccaacgcgca	atatgccttg	cgaggtcgca	aaatcggcga	aattccatac	ctggtcaccg	720
acgacggcgc	tgacgcgatc	aaagacgcgg	tgatacatat	ccagccatgc	acactgatac	780
tcttctactcc	acatgtcggg	gtacattgag	tgacgcccgg	ctaacgtatc	cacgcggtat	840
tcgggtgatga	taatcggtcg	atgcagtttc	tcttgccagg	ccagaagttc	thtttccagt	900
accttctctg	ccgtthtcaa	atcgccgctt	tggaataacc	atccgtaata	acggttcagg	960
cacagcaccat	caaagagatc	gctgatggta	tcgggtgtgag	cgtcgcagaa	cattacattg	1020
acgcaggtga	tcggagcgcg	cggttcgagt	ttacgcgttg	cttccgccag	tgccgaaata	1080
ttcccggtgca	cttgccgacg	gggtatccgt	tcgttgccaa	tactccacat	caccacgctt	1140
gggtggthtt	tgacgcgcgc	tatcagctct	ttaatgcctt	gtaagtgcgc	ttgctgagtt	1200
tcccggttga	ctgcctcttc	gctgtacagt	tctttcggtt	tggtgcccgc	ttcgaaacca	1260
atgcctaaag	agaggttaaa	gccgacagca	gcagtttcat	caatcaccac	gatgccatgt	1320
tcactctgcc	agtcgagcat	ctcttcagcg	taagggtaat	gcgaggtacg	gtaggagttg	1380
gccccaatcc	agtcatttaa	tgcggtgtcg	tgacccatca	gcacgttatc	gaatcctttg	1440
ccacgtaagt	ccgcattctt	atgacgacca	aagccagtaa	agtagaacgg	thttgtggtta	1500
atcaggaact	gttcgccttt	cactgccact	gaccggatgc	cgacgcgaag	cggttagata	1560
tcacactctg	tctggcttht	ggctgtgacg	cacagttcat	agagataacc	ttcaccgggt	1620
tgccagaggt	gcggattcac	cacttgcaaa	gtcccgctag	tgcttgttcc	agttgcaacc	1680
acctgttgat	ccgcattcac	cagttcaacg	ctgacatcac	cattggccac	cacctgccag	1740
tcaacagacg	cgtggttaca	gtcttgccgc	acatgcgtca	ccacgggtgat	atcgtccacc	1800
caggtgttcg	gcgtggtgta	gagcattacg	ctgcgatgga	ttccggcata	gttaaagaaa	1860
tcattggaagt	aagactgctt	thttcttgccg	thttctgctcg	taatcaccat	tccggcgggg	1920
atagtctgcc	agttcagttc	gttggttcaca	caaacgggtga	tacctgcaca	tcaacaaatt	1980
ttggtcatat	attagaaaa	ttataaaatta	aaatatatac	acttataaac	tacagaaaag	2040
caattgtctat	atactacatt	ctthttatttt	gaaaaaaata	thttgaaatat	tataattacta	2100
ctaattaatg	ataattatta	tatatataatc	aaaggtagaa	gcagaaaactt	acgtacactt	2160
ttcccgccaa	taacatacgg	cgtgacatcg	gcttcaaatg	gcgtatagcc	gccctgatgc	2220
tccatcactt	cctgattatt	gacccacact	ttgccgtaat	gagtgaccgc	atcgaaacgc	2280
agcacgatac	gctggcctgc	ccaaccttht	gggtataaaga	cttcgcgctg	ataccagacg	2340
ttgcccgcac	aattacgaat	atctgcacgc	gcgaactgat	cgthaaaact	gcctggcaca	2400
gcaattgccc	ggctthtctg	taacgcgctt	tcccaccaac	gctgaccaat	tccacagttt	2460
tcgcgatcca	gactgaatgc	ccacaggccg	tcgagthttt	tgatttcacg	ggthgggggt	2520
tctacaggac	gtacccatgg	cgatcgactc	tagactagtg	gatccgatat	cgcccggtct	2580
gcagaagtaa	caccaaaaca	caggtgtgag	atcgacaaaa	gaaacagtac	caagcaata	2640
aatagcgtat	gaaggcaggg	ctaaaaaaat	ccacatatag	ctgctgcata	tgccatcatc	2700
caagtatatc	aagatcaaaa	taattataaa	acataactgt	ttattataat	agataggtac	2760
tcaaggttag	agcatatgaa	tagatgctgc	atatgccatc	atgtatatgc	atcagtaaaa	2820
cccacatcaa	catgtatacc	tatcctagat	cgatatttht	atccatctta	aactcgtaac	2880
tatgaagatg	tatgacacac	acatacagtt	ccaaaattaa	taaatacacc	aggtagthttg	2940
aaacagtatt	ctactccgat	ctagaacgaa	tgaacgaccg	cccaaccaca	ccacatcatc	3000
acaaccaagc	gaacaaaaag	catctctgtg	tatgcatcag	taaaaccgcg	atcaacatgt	3060
atacctatcc	tagatcgata	thttccatcca	tcatcttcaa	thtcgtaacta	tgaatatgta	3120
tggcacacac	atacagatcc	aaaatttaata	aatccaccag	gtagthttgaa	acagaattct	3180
actccgatct	agaagcagcg	cccaaccaga	ccacatcatc	acaaccaaga	caaaaaaaag	3240
catgaaaaga	tgacccgaca	aacaagtgcg	cgccatatat	tgaaataaag	gaaaaggcca	3300
aaccaaacc	tatgcaacga	aacaaaaaaa	atcatgaaat	cgatcccgtc	tgccgaacgg	3360
ctagagccat	cccaggatth	cccaaagaga	aacactggca	agthtagcaat	cagaacgtgt	3420
ctgacgtaca	ggtgcgcatc	gtgtacgaac	gctagcagca	cgcatctaac	acaaacacgg	3480
atctaacaca	aacatgaaca	gaagtagaac	taccggggcc	taaccatgga	ccggaacgcc	3540
gatctagaga	aggtagagag	gggggggggg	ggaggacgag	cgccgtacct	tgaagcggag	3600
gtgccgacgg	gtggatttgg	gggagatctg	gttggtgtgtg	tggtgcgtcc	gaacaacacg	3660

aggttgggga	aagaggggtgt	ggaggggggtg	tctatatttatt	acggcgggcg	aggaagggaa	3720
agcgaaggag	cggtgggaaa	ggaatcccc	gtagctgccg	tgccgtgaga	ggaggaggag	3780
gccgcctgcc	gtgccggctc	acgtctgccg	ctccgccacg	caatttctgg	atgccgacag	3840
cggagcaagt	ccaacgggtg	agcggaaactc	tccagagggg	tccagaggca	gcgacagaga	3900
tgccgtgccg	tctgcttcgc	ttggccccgac	gcgacgctgc	tggttcgctg	gttggtgtcc	3960
gtagactcg	tcgacggcgt	ttaacaggct	ggcattatct	actcgaaaca	agaaaaatgt	4020
ttccttagtt	tttttaattt	cttaaagggt	atttgtttaa	tttttagtca	ctttatttta	4080
ttctatttta	tatctaaatt	attaaataaa	aaaactaaaa	tagagtttta	gttttcttaa	4140
tttagaggct	aaaatagaat	aaaatagatg	tactaaaaaa	attagtctat	aaaaaccatt	4200
aaccctaaac	cctaaatgga	tgtactaata	aatggatga	agtattatat	aggtgaagct	4260
atttgcaaaa	aaaaaggaga	acacatgcac	actaaaaaga	taaaactgta	gagtcctgtt	4320
gtcaaaatac	tcaattgtcc	tttagaccat	gtctaactgt	tcatttatat	gattctctaa	4380
aacactgata	ttattgtagt	actatagatt	atattattcg	tagagttaaag	tttaaataata	4440
tgtataaaga	tagataaaact	gcacttcaaa	caagtgtgac	aaaaaaaaata	tgtggttaatt	4500
ttttataact	tagacatgca	atgctcatta	tctctagaga	ggggcacgac	cgggtcacgc	4560
tgcaactgcag	gaattcgatg	ggctcgagggt	accgagctcg	gtaccactg	gattttgggt	4620
ttaggaatta	gaaattttat	tgatagaagt	attttacaaa	tacaaataca	tactaagggt	4680
ttcttatatg	ctcaacacat	gagcgaaacc	ctataagaac	cctaattccc	ttatctggga	4740
actactcaca	cattattata	gagagagata	gatttgtaga	gagagactgg	tgatttcagc	4800
ggcatgcctg	caggtcgact	cagatctggg	taactggcct	aactggcctt	ggaggagctg	4860
gcaactcaaa	atccctttgc	caaaaaccaa	catcatgcca	tccaccatgc	ttgtatccag	4920
ctgcgcgcaa	tgtaccccg	gctgtgtatc	ccaaagcctc	atgcaaccta	acagatggat	4980
cgtttggaag	gcctataaca	gcaaccacag	acttaaaacc	ttgcgcctcc	atagacttaa	5040
gcaaatgtgt	gtacaatgtg	gatcctaggc	ccaacctttg	atgcctatgt	gacacgtaaa	5100
cagtactctc	aactgtccaa	tcgtaagcgt	tcctagcctt	ccagggccca	gcgtaagcaa	5160
taccagccac	aacaccctca	acctcagcaa	ccaaccaagg	gtatctatct	tgcaacctct	5220
ctagatcatc	aatccactct	tgtggtgttt	gtggctctgt	cctaaagtcc	actgtagacg	5280
tctcaatgta	atggttaacg	atatcacaaa	ccgcggccat	atcagctgct	gtagctggcc	5340
taatctcaac	tggtctcctc	tccggagaca	tgtcgactct	agaggatccc	ccgggctgca	5400
gaagtaacac	caaacaacag	ggtgagcatc	gacaaaagaa	acagtaccaa	gcaataaaat	5460
agcgtatgaa	ggcagggtca	aaaaaatcca	catataagctg	ctgcatatgc	catcatccaa	5520
gtatatcaag	atcaaaaata	ttataaaaaca	tacttggtta	ttataataga	taggtactca	5580
aggttagagc	atatgaatag	atgctgcata	tgccatcatg	tatatgcac	agtaaaaccc	5640
acatcaacat	gtatacctat	cctagatcga	tatttccatc	catcttaaac	tcgtaactat	5700
gaagatgtat	gacacacaca	tacagttcca	aaattaataa	atacaccagg	tagtttgaaa	5760
cagtattcta	ctccgatcta	gaacgaatga	acgaccgccc	aaccacacca	catcatcaca	5820
accaagcgaa	caaaaagcat	ctctgtatat	gcatcagtaa	aaccgcacac	aacatgtata	5880
cctatcctag	atcgatattt	ccatccatca	tcttcaattc	gtaactatga	atatgtatgg	5940
cacacacata	cagatccaaa	attaataaat	ccaccaggta	gtttgaaaca	gaattctact	6000
ccgatctaga	acgaccgccc	aaccagacca	catcatcaca	accaagacaa	aaaaaagcat	6060
gaaaagatga	cccagacaaac	aagtgcacgg	catatatattga	aataaaaggaa	aaggggcaaac	6120
caaaccctat	gcaacgaaac	aaaaaaaaatc	atgaaatcga	tcccgctctgc	ggaacggcta	6180
gagccatccc	aggattcccc	aaagagaaac	actggcaagt	tagcaatcag	aacgtgtctg	6240
acgtacagggt	cgcacccgtg	tacgaacgct	agcagcacgg	atctaacaca	aacacggatc	6300
taacacaaac	atgaacagaa	gtagaactac	cgggccctaa	ccatggaccg	gaacgccgat	6360
ctagagaagg	tagagagggg	ggggggggga	ggacgagcgg	cgtaccttga	agcggagggtg	6420
ccgacgggtg	gatttggggg	agatctgggt	gtgtgtgtgt	gcgctccgaa	caacacgagg	6480
ttggggaaag	aggggttgga	gggggtgtct	atttattacg	gcgggagagg	aagggaaagc	6540
gaaggagcgg	tgggaaagga	atcccccgta	gctgcctgtc	cgtgagagga	ggaggaggcc	6600
gcctgcctg	cgggtcacg	tctgccgctc	gccacgcaa	tttctggatg	ccgacagcgg	6660
agcaagtcca	acgggtggagc	ggaactctcg	agaggggtcc	agaggcagcg	acagagatgc	6720
cgtgcctct	gcttcgcttg	gcccagcgg	acgctgctgg	ttcgctgggt	ggtgtccgtt	6780
agactcgctg	acggcgttta	acaggctggc	attatctact	cgaacaaga	aaaatgtttc	6840
cttagttttt	ttaatctctt	aaagggtatt	tgtttaattt	ttagtcactt	tattttattc	6900
tattttatat	ctaaattatt	aaataaaaaa	actaaaatag	agtttttagtt	ttcttaattt	6960
agaggctaaa	atagaataaa	atagatgtac	taaaaaaatt	agtctataaa	aaccattaac	7020
cctaaaccct	aatggatgt	actaataaaa	tggatgaagt	attatatagg	tgaagctatt	7080

tgcaaaaaaa	aaggagaaca	catgcacact	aaaaagataa	aactgtagag	tcctgttgtc	7140
aaaatactca	attgtccttt	agaccatgtc	taactgttca	tttatatgat	tctctaaaac	7200
actgatatta	ttgtagtact	atagattata	ttattcgtag	agtaaagttt	aaatatatgt	7260
ataaagatag	ataaactgca	cttcaaacaa	gtgtgacaaa	aaaaatatgt	ggtaattttt	7320
tataacttag	acatgcaatg	ctcattatct	ctagagaggg	gcacgaccgg	gtcacgctgc	7380
actgcaggaa	ttcgatatca	agctggctga	gtggctcctt	caacgttgcg	gttctgtcag	7440
ttccaaacgt	aaaacggctt	gtcccgcgtc	atcggcgggg	gtcataacgt	gactccctta	7500
attctccgct	catgatcaga	ttgtcgtttc	ccgccttcag	tttaaactat	cagtgtttga	7560
caggatcact	gcttggtaat	aattgtcatt	agattgtttt	tatgcataga	tgcactcgaa	7620
atcagccaat	tttagacaag	tatcaaacgg	atgttaattc	agtacattaa	agacgtccgc	7680
aatgtgttat	taagttgtct	aagcgtcaat	ttgtttacac	cacaatatat	cctgccacca	7740
gccagccaac	agctcccga	ccggcagctc	ggcacaaaat	caccacgcgt	ctaaaaagg	7800
gatgtgtatt	tgagtaaaac	agcttgcgct	atgcggtcgc	tgcgtatatg	atgcgatgag	7860
taaataaaca	aatacgcaag	gggaacgcat	gaaggttatc	gctgtactta	accagaaagg	7920
cgggtcaggc	aagacgacca	tcgcaaccca	tctagcccgc	gccctgcaac	tcgccggggc	7980
cgatgttctg	ttagtcgatt	ccgatcccca	gggcagtgcc	cgcgattggg	cggccgtgcg	8040
ggaagatcaa	ccgctaaccg	ttgtcggcat	cgaccgcccg	acgattgacc	gcgacgtgaa	8100
ggccatcggc	cggcgcgact	tcgtagtgat	cgacggagcg	ccccaggcgg	cggacttggc	8160
tgtgtccgcg	atcaaggcag	ccgacttcgt	gctgattccg	gtgcagccaa	gcccttacga	8220
catatggggc	accgccgacc	tggtggagct	gggttaagcag	cgcattgagg	tcacggatgg	8280
aaggctacaa	gcggcctttg	tcgtgtcgcg	ggcgatcaaa	ggcacgcgca	tcggcggtga	8340
ggttgccgag	gcgctggccg	ggtacgagct	gcccattctt	gagtcccgtg	tcacgcagcg	8400
cgtgagctac	ccaggcactg	ccgccgcggg	cacaaccggt	cttgaatcag	aacccgaggg	8460
cgacgctgcc	cgcgaggtcc	aggcgctggc	cgctgaaatt	aaatcaaaac	tcatttgagt	8520
taatgaggta	aagagaaaat	gagcaaaaagc	acaaacacgc	taagtgccgg	ccgtccgagc	8580
gcacgcagca	gcaaggetgc	aacgttggcc	agcctggcag	acacgccagc	catgaagcgg	8640
gtcaactttc	agttgccggc	ggaggatcac	accaagctga	agatgtacgc	ggtacgccaa	8700
ggcaagacca	ttaccgagct	gctatctgaa	tacatcgcgc	agctaccaga	gtaaatgagc	8760
aaatgaataa	atgagtagat	gaatttttagc	ggctaaagga	ggcggcatgg	aaaatcaaga	8820
acaaccaggc	accgacgcct	tggaatgccc	catgtgtgga	ggaacggggc	gttggccagg	8880
cgtaaaggcg	tgggttgtct	gccggccctg	caatggcact	ggaaccccca	agcccaggga	8940
atcggcgtag	gcggctcgca	accatccggc	ccggtacaaa	tcggcgcggc	gctgggtgat	9000
gacctggtgg	agaagttgaa	ggccgcgcag	gccgcccagc	ggcaacgcat	cgaggcagaa	9060
gacgccccgg	tgaatcgtgg	caagggggccg	ctgatcgaat	ccgcaaagaa	tcccggcaac	9120
cgcgggcagc	cgggtgcgcg	tcgattagga	agccgcccaa	gggcgacgag	caaccagatt	9180
ttttcgttcc	gatgctctat	gacgtgggca	cccgcgatag	tcgcagcatc	atggacgtgg	9240
ccgttttccg	tctgtcgaag	cgtgaccgac	gagctggcga	ggtgatccgc	tacgagcttc	9300
cagacgggca	cgtagaggtt	tcgcgagggc	cggccggcat	ggccagtgtg	tgggattacg	9360
acctggtact	gatggcggtt	tcccatctaa	ccgaatccat	gaaccgatac	cgggaaggga	9420
agggagacaa	gcccggccgc	gtgttccgct	cacacgttgc	ggacgtactc	aagttctgcc	9480
ggcgagccga	tggcggaag	cagaaagacg	acctggtaga	aacctgcatt	cggttaaaca	9540
ccacgcacgt	tgccatgcag	cgtacgaaga	aggccaagaa	cggccgcctg	gtgacggtat	9600
ccgagggtag	agccttgatt	agccgctaca	agatcgtaaa	gagcgaaacc	gggcggccgg	9660
agtacatcga	gatcgagcta	gctgattgga	tgtaccgcga	gatcacagaa	ggcaagaacc	9720
cggacgtgct	gacggttcac	cccgattact	ttttgatcga	tcccggcatc	ggccgttttc	9780
tctaccgcct	ggcagccgcg	gccgcaggca	aggcagaagc	cagatggttg	ttcaagacga	9840
tctacgaacg	cagtggcagc	gccggagagt	tcaagaagtt	ctgtttcacc	gtgcgcaagc	9900
tgatcgggtc	aaatgacctg	ccggagtacg	atttgaagga	ggaggcgggg	caggctggcc	9960
cgatcctagt	catgcgtac	cgcaacctga	tcgagggcga	agcatccgcc	ggttccta	10020
gtacggagca	gatgctaggg	caaattggcc	tagcagggga	aaaaggctga	aaaggctctt	10080
ttcctgtgga	tagcacgtac	attgggaacc	caaagccgta	cattgggaac	cggaaaccgt	10140
acattgggaa	cccaaagccg	tacattggga	accggtcaca	catgtaagt	actgatataa	10200
aagagaaaaa	aggcgatttt	tccgcctaaa	actctttaaa	acttattaaa	actcttaaaa	10260
cccgcctggc	ctgtgcataa	ctgtctggcc	agcgcacagc	cgaagagctg	caaaaagcgc	10320
ctacccttcg	gtcgtgcgcg	tccctacgcc	ccgcgccttc	gcgtcggcct	atcgcggcct	10380
atgcgggtgtg	aaataccgca	cagatgcgta	aggagaaaaat	accgcacacg	gcgctcttcc	10440
gcttccctgc	tcactgactc	gctgcgctcg	gtcgttcggc	tgcggcgagc	ggtatcagct	10500

cactcaaagg	cggtaatagc	gttatccaca	gaatcagggg	ataacgcagg	aaagaacatg	10560
tgagcaaaaag	gccagcaaaa	ggccaggaac	cgtaaaaaagg	ccgcgttgct	ggcgtttttc	10620
cataggctcc	gccccctga	cgagcatcac	aaaaatcgac	gctcaagtca	gaggtggcga	10680
aacccgacag	gactataaag	ataccaggcg	tttccccctg	gaagctccct	cgtgcgctct	10740
cctgtttccga	ccctgccgct	taccggatac	ctgtccgcct	ttctcccttc	gggaagcgctg	10800
gcgctttctc	atagctcacg	ctgtaggat	ctcagttcgg	tgtaggctcg	tcgctccaag	10860
ctgggctgtg	tgcacgaacc	ccccgttcag	cccgaccgct	gcgccttatc	cggtaactat	10920
cgtcttgagt	ccaaccgggt	aagacacgac	ttatcgccac	tggcagcagc	cactggtaac	10980
aggattagca	gagcgaggta	tgtaggcggt	gctacagagt	tcttgaagtg	gtggcctaac	11040
tacggctaca	ctagaaggac	agtatttggt	atctgcgctc	tgctgaagcc	agttaccttc	11100
ggaaaaagag	ttggtagctc	ttgatccggc	aaacaaacca	ccgctggtag	cgggtggtttt	11160
tttgtttgca	agcagcagat	tacgcgcaga	aaaaaaggat	ctcaagaaga	tcctttgatc	11220
ttttctacgg	ggtctgacgc	tcagtgggac	gaaaactcac	gttaagggat	tttggctatg	11280
catgatatat	ctcccaatth	gtgtagggct	tattatgcac	gcttaaaaaat	aataaaaagca	11340
gacttgacct	gatagtttgg	ctgtgagcaa	ttatgtgctt	agtgcattcta	acgcttgagt	11400
taagccgcgc	cgcgaagcgg	cgtcggtctg	aacgaatttc	tagctagaca	ttatttgccg	11460
actaccttgg	tgatctcgcc	tttcaagtag	tggacaaatt	cttccaactg	atctgcgcgc	11520
gaggccaagc	gatctttctc	ttgtccaaga	taagcctgtc	tagcttcaag	tatgacgggc	11580
tgatactggg	ccggcaggcg	ctccattgcc	cagtcggcag	cgacatcctt	cggcgcgatt	11640
ttgccggtta	ctgcgctgta	ccaaatgcgg	gacaacgtaa	gcactacatt	tcgctcatcg	11700
ccagcccagt	cgggcggcga	gttccatagc	gttaagggtt	catttagcgc	ctcaaataga	11760
tcctgttcag	gaaccggatc	aaagagttcc	tccgccgctg	gacctacca	ggcaacgcta	11820
tgttctcttg	cttttgtcag	caagatagcc	agatcaatgt	cgatcgtggc	tggctcgaag	11880
atacctgcaa	gaatgtcatt	gcgctgccat	tctccaaatt	gcagttcgcg	cttagctgga	11940
taacgccacg	gaatgatgtc	gtcgtgcaca	acaatggtga	cttctacagc	gcggagaatc	12000
tcgctctctc	caggggaagc	cgaagtthcc	aaaaggctcg	tgatcaaagc	tcgccgcgct	12060
gtttcatcaa	gccttacggg	caccgtaacc	agcaaatcaa	tatcactgtg	tggcttcagg	12120
ccgccatcca	ctgcggagcc	gtacaaatgt	acggccagca	acgtcggttc	gagatggcgc	12180
tcgatgacgc	caactacctc	tgatagttga	gtcgatactt	cggcgatcac	cgttcccccc	12240
atgatgttta	actttgtttt	agggcgactg	ccctgctgcg	taacatcggt	gctgctccat	12300
aacatcaaac	atcgacccac	ggcgtaacgc	gcttgctgct	tggatgcccg	aggcatagac	12360
tgtaccccaa	aaaaacagtc	ataacaagcc	atgaaaaccg	ccactgcgct	ccatg	12415